Applying the New CCSDS File Delivery Protocol in a Mission Environment: A Case Study of the JPL TT&C Ground System Adaptation for the Deep Impact Mission

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Abstract

The emerging CCSDS File Delivery Protocol (CFDP) Standard will re-shape ground support architectures by enabling applications to communicate over the space link using reliable-symmetric transport services. Traditional ground support architectures for telemetry and commanding will need to operate as link-level devices rather than in the application domain as typically done when applications communicate using CCSDS packets. JPL is implementing the CFDP standard to support future missions including Deep Impact. The new architecture is based on layering the CFDP applications on top of the new CCSDS Space Link Extension Services for data transport from the mission control centers to the ground stations. This paper uses the Deep Impact mission as a case study and discusses the architecture, requirements, and design for integrating the CFDP into the JPL deep space ground support services.

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